



In re: application entitled **Laparoscopic Lifter Apparatus and Method**

Inventor: Gregory R. Pittman

Group Art No. 3731

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Examiner: (Jackie) Tan-Uyen T. Ho

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To: Examiner ((Jackie) Tan-Uyen T. Ho

Claims Amended after Final Rejection: Final Rejection Mailed 09/29/2004

What is claimed is:

1. (Currently Amended) A laparoscopic lifter apparatus for elevating and positioning internal organs comprising

a flexible arms component ~~having first bilateral handles joined to a central element securing a solid rod substantially perpendicular to said bilateral handles, said solid rod passing through an internally threaded ring housing~~[[,]] ~~a locking screw, then said solid rod terminating in a connector piece with means for gripping~~ having more than one band like flexible arm[[s;]], wherein said band like flexible arms are mirror images of each other and equal in length, width and depth having a width substantially three to four times greater than a depth, each band like flexible arm ending in a blunt sphere, and each band like flexible arm having a uniform width throughout its length, said band like flexible arms being made of a metal having memory properties wherein said band like flexible arms continually express the same and an infinite number of arcuate shapes defining an oval space when gradually extended after repeated retractions into a rigid tubular rod, said arcuate shapes determined by organ shape and size needs, and said band like flexible arms able to be manipulated in unison by rotating said first bilateral handles along a central axis through a 360 degree range.

~~a tubular rod component having a hollow externally threaded coupler adhered to a central hollow knob securing a tubular rod, said central hollow knob supporting second bilateral handles substantially perpendicular to said tubular rod; wherein said flexible arms are pushed through said hollow externally threaded coupler into said hollow knob and then into said tubular rod, said internally threaded ring and said externally threaded coupler securing said flexible arms component to said tubular rod component by screw means.~~

2. (Canceled) The organ lifter apparatus of claim 1 wherein said flexible arms assume arcuate shapes when extended out from said tubular rod.
3. (Canceled) The organ lifter apparatus of claim 1 wherein said flexible arms terminate in blunt ends.
4. (Canceled) A method for using said laparoscopic lifter apparatus as described in claim 1 comprising the steps of
 - holding said laparoscopic lifter apparatus with said flexible arms retracted inside said tubular rod,
 - inserting said laparoscopic lifter apparatus into a patient's abdominal cavity through a trocar sleeve,
 - reaching an organ site,
 - extending said flexible arms outside said tubular rod,
 - positioning said flexible arms under a target organ,
 - lifting said organ to expose an organ hilum,
 - dissecting said hilum,
 - ligating, suturing, and clipping blood vessels associated with said hilum,
 - dissecting said hilum,
 - ligating, suturing, and clipping blood vessels associated with said hilum,
 - removing said flexible arms from under said organ,
 - retracting said flexible arms into said hollow rod,

and

removing said laparoscopic lifter apparatus from said patient's abdominal cavity.

5. (New) The laparoscopic lifter apparatus of claim 1 wherein a maximum distance between said band like flexible arms is achieved upon full extension through said rigid tubular rod.
6. (New) The laparoscopic lifter apparatus of claim 1 wherein said blunt spheres are separated by a distance of substantially 4 to 6 centimeters at full ejection.
7. (New) The laparoscopic lifter apparatus of claim 1 wherein said band like flexible arms are retracted into said rigid tubular rod so that said blunt spheres are touching.
8. (New) The laparoscopic lifter apparatus of claim 1 wherein said band like flexible arms have widths just slightly less than a rigid tubular rod inner diameter to prevent band like flexible arms crossover during retraction.
9. (New) A laparoscopic lifter apparatus for elevating and positioning internal organs comprising

a flexible arms component having more than one band like flexible arm wherein said band like flexible arms are mirror images of each other and equal in length, width and depth having a width substantially three to four times greater than a depth, each band like flexible arm ending in a blunt sphere, and each band like flexible arm having a uniform width throughout its length, said band like flexible arms being made of a metal having memory properties wherein said band like flexible arms continually express the same and an infinite number of arcuate shapes defining an oval space when gradually extended after repeated retractions into a rigid tubular rod, said arcuate shapes determined by organ shape and size needs, and said band like flexible arms rotatable in unison through a 360 degree range;

and

a supporting tubular rod component having said rigid tubular rod wherein arcuate shaped band like flexible arms are retracted diminishing said arcuate shape until said band like arms are fully enclosed in said rigid tubular rod to comprise an assembled laparoscopic lifter apparatus ready for incision insertion, organ manipulation and lifting, said rigid tubular rod having an outside diameter designed to fit through a small incision 10 to 11 millimeters in length.

10. (New) The laparoscopic lifter apparatus of claim 9 wherein a maximum distance between said band like flexible arms is achieved upon full extension through said rigid tubular rod.

11. (New) The laparoscopic lifter apparatus of claim 9 wherein said blunt spheres are separated by a distance of substantially 4 to 6 centimeters at full ejection.

12. (New) The laparoscopic lifter apparatus of claim 9 wherein said band like flexible arms are retracted into said rigid tubular rod so that said blunt spheres are touching.

13. (New) The laparoscopic lifter apparatus of claim 9 wherein said band like flexible arms have widths just slightly less than a rigid tubular rod inner diameter to prevent band like flexible arms crossover during retraction.

14. (New) The laparoscopic lifter apparatus of claim 9 wherein said flexible arms component and said tubular rod component are separated for sterilizing purposes.

15. (New) A method for using said assembled laparoscopic lifter apparatus as described in claim 9 comprising the steps of

inserting said tubular rod containing said band like flexible arms into said 10 to 11 millimeter incision,

slowly ejecting said band like flexible arms to define an optimal oval space and blunt end opening for selected organ lifting,

rotating said band like flexible arms within a 360 degree range and

slipping said blunt end opening over an organ end,

sliding said band like flexible arms around and then under an organ,

resting said organ on said band like flexible arms depth side,
performing necessary organ procedures,
fully extending said band like flexible arms to achieve a maximum blunt sphere
opening,
sliding said laparoscopic lifter apparatus away from said organ,
retracting said band like flexible arms fully into said rigid tubular rod,
removing said laparoscopic lifter from an abdominal cavity.